No. 582. Decade V.—Vol. IX.—No. XII. Price 2s. net.

THE

GEOLOGICAL MAGAZINE

OR

Monthly Journal of Geology.

WITH WHICH IS INCORPORATED

THE GEOLOGIST.

UNIVERSITY OF WISCONSIN

EDITED BY

HENRY WOODWARD, LL.D., F.R.S., F.G.S., &c.

ASSISTED BY

PROFESSOR J. W. GREGORY, D.Sc., F.R.S., F.G.S.
DR. GEORGE J. HINDE, F.R.S., F.G.S.
SIR THOMAS H. HOLLAND, K.C.I.E., A.R.C.S., D.Sc., F.R.S., F.G.S.
PROFESSOR W. W. WATTS, Sc.D., M.Sc., F.R.S., VICE-PRES. GEOL. SOC.
DR. ARTHUR SMITH WOODWARD, F.R.S., F.L.S., SEC. GEOL. SOC.
HORACE B. WOODWARD, F.R.S., F.G.S.

DECEMBER, 1912.

CONTENTS.

I. ORIGINAL ARTICLES. *Page*

The Species of *Cidaris* from Lower Greensand, Faringdon. By HERBERT L. HAWKINS, M.Sc., F.G.S., Reading University. (Plates XXV and XXVI.)... ... 529

Post-Jurassic Earth-movements in South Africa. By Professor E. H. L. SCHWARZ, A.R.C.S., F.G.S., Rhodes University. (Two Text-figures.) 540

Palæontology the Biology of Fossils. By W. D. LANG, M.A., F.Z.S. . 550

The Pollurian - Trewavas Coast Section, Cornwall. By U. GREEN and C. D. SHERBORN... 558

II. NOTICES OF MEMOIRS.

Volcanic Rocks, Ord Hill. By Wm. Mackie, M.A., M.D.... 561

Millstone Grit, Yorkshire. By A. Gilligan, B.Sc. 561

Silurian Inlier of Usk. By C. I. Gardiner, M.A., F.G.S. 562

III. REVIEWS.

The Making of the Earth. By Professor J. W. Gregory, F.R.S. 563

REVIEWS (*continued*). *Page*

The Building of the Alps. By Professor T. G. Bonney, Sc.D., F.R.S. 564

Geological Survey of Canada... ... 566

Records of the Geological Survey of India 567

South African Geology. By Professor E. H. L. Schwarz 568

Water Supply of Surrey. By Wm. Whitaker, B.A., F.R.S. 569

Oil-finding. By E. H. C. Craig, B.A., F.G.S. 570

Sedimentary Deposition of Oil. By Murray Stewart, D.Sc., F.G.S. . 570

Cotteswold Naturalists' Field Club 572

Prehistoric Society of East Anglia . 573

Brief Notices: United States and W. Australian Geological Surveys 574

IV. REPORTS AND PROCEEDINGS.

Geological Society of London, November 6, 1912 574

V. CORRESPONDENCE.

George Greenwood, M.P. 576

LONDON: DULAU & CO., LTD., 37 SOHO SQUARE, W.

☞ **The Volume for 1911 of the GEOLOGICAL MAGAZINE is ready, price 26s. net. Cloth Cases for Binding may be had, price 1s. 6d. net**

THE MURDOCH TRUST

For the benefit of INDIGENT BACHELORS and WIDOWERS of Good Character, over 55 years of age, who have done 'something' in the way of Promoting or Helping some branch of Science.

Donations or Pensions may be granted to persons who comply with these conditions. For particulars apply to Messrs. J. and J. TURNBULL, W.S., 58 Frederick Street, Edinburgh.

Two Volumes. Royal Quarto. With Three Portraits and other Plates. Price, in Boards, £2 10s. net.

Vol. I: pp. i-cxx, 1-597. Vol. II: pp. i-viii, 1-718.

THE

SCIENTIFIC PAPERS

OF

SIR WILLIAM HERSCHEL,

KNT. GUELP., LL.D., F.R.S.

INCLUDING EARLY PAPERS HITHERTO UNPUBLISHED.

Collected and Edited under the direction of a Joint Committee of the Royal Society and the Royal Astronomical Society.
With a Biographical Introduction compiled mainly from Unpublished Material by J. L. E. DREYER.

RAY SOCIETY.

Just Published. For the Sixty-eighth Year, 1911.

A MONOGRAPH of the BRITISH DESMIDIACEÆ. By W. WEST and Professor G. S. WEST. Vol. IV. xiv + 194 + 66 pages, with 33 plates (xcvi-cxxviii). 8vo. Cloth 1912. £1 5*s.* net.

(Vols. I-III each £1 5s. net.)

THE BRITISH TUNICATA. By the late JOSHUA ALDER and the late ALBANY HANCOCK. Edited by JOHN HOPKINSON. Vol. III. xii + 114 + 34 pages, with 16 plates (li-lxvi). 8vo. Cloth. 1912. 12*s.* 6*d.* net.

(Completing the work) Vol. I, 12s. 6d. net; Vol. II, £1 5s. net.

PALÆONTOGRAPHICAL SOCIETY.

VOLUME LXV. 4to Boards, or in separate parts. £1 5s. net. May be had separately at the prices fixed. Containing—

1. **THE PLEISTOCENE MAMMALIA.—MUSTELIDÆ.** With Title-page and Index to Vol. II. By Professor S. H. REYNOLDS. Eight plates. 8*s.* net.
2. **THE CARBONIFEROUS GANOID FISHES.** Part I, No. 6. By Dr. R. H. TRAQUAIR. Five plates. 5*s.* net.
3. **THE FISHES OF THE ENGLISH CHALK.** Part VII. With Title-page and Index. By Dr. A. S. WOODWARD. Eight plates. 8*s.* net.
4. **THE CRETACEOUS LAMELLIBRANCHIA.** Vol. II, Part VIII. By Mr. H. WOODS. Four plates. 4*s.* net.
5. **THE FOSSIL SPONGES.** Title-page and Index to Vol. I. By Dr. G. J. HINDE. 1*s.* net.

London: DULAU & Co., Ltd., 37 Soho Square, W.

LIST OF NATURAL HISTORY AND SCIENTIFIC BOOKS AND PAPERS ON SALE BY DULAU & CO., LTD., 37 SOHO SQUARE, LONDON, W.

ANDERSON (J. W.). The Prospector's Handbook: Guide for traveller in search of metal-bearing or other minerals. 12th edition. London, 1909. 12mo. Cloth. 3*s.*

BATES (H. W.). The Naturalist on the River Amazons; a record of adventures, habits of animals, sketches of Brazilian and Indian Life, and aspects of nature under the Equator, during eleven years of travel. London, 1863. 2 vols. 8vo. With 42 illustrations. Cloth. £1 2*s.*

COQUAND (H.). Description géologique de la province de Constantine. Paris (Soc. Géol.), 1854. 4to. pp. 156. With 4 plates. 5*s.*

DELESSE. Carte géologique du Dépt. de la Seine; publiée d'après les ordres de G. E. Haussmann. 1865. Large map, mounted on linen, folded in pocket form. 2*s.* 6*d.*

HERMANN (F.). Beiträge zur Kenntniss der südamerikanischen Dipterenfauna. Fam. Asilidæ. Halle (Nova Acta), 1912. 4to. With 5 plates. £1 2*s.* 6*d.*

HOLLEY (C. D.). The Lead and Zinc Pigments. London, 1909. Crown 8vo. 12*s.* 6*d.*

HOLMES (J. H.). Treatise on the Coal Mines of Durham and Northumberland. London, 1816. 8vo, plates, half-calf. 5*s.*

HOUSTON (R. S.). Notes on the Mineralogy of Renfrewshire. (Trans. Paisley Nat. Soc.) London, 1912. 8vo. pp. 88. 2*s.* 6*d.*

JOHNSON, (W.). Wimbledon Common: its Geology, Antiquities, and Natural History. London, 1912. 8vo. Illustrated. 5*s.*

JOHNSTON-LAVIS (H. J.). Monograph of the Earthquakes of Ischia. London, 1885. 4to. With plates. Cloth. £1 12*s.*

JUKES-BROWNE (A. J.). The building of the British Isles: a Study in Geographical Evolution. London, 1888. 8vo. pp. 343. Illustrated by maps and woodcuts. Cloth. 4*s.*

—— —— Third Edition. London, 1911. 8vo. Cloth. 12*s.*

KNIPE (H. R.). Evolution in the Past. London, 1912. Royal 8vo. pp. 242. With illustrations. Cloth, gilt top. 12*s.* 6*d.*

KNIPE (J. A.). Geological map of Scotland: Lochs, Mountains, Islands, Rivers, and Canals, and sites of the Minerals. London, 1861. Folio, mounted on linen, with rollers, and varnished. 5*s.*

LESLEY (J. P.). Summary description of the Geology of Pennsylvania. Harrisburg, 1892–5. 3 in 4 vols. With Supplement and Atlas. 8vo. With many plates. Cloth. £1 5*s.*

*** Vol. I. Laurentian, Cambrian, and Lower Silurian.
II. Upper Silurian and Devonian.
III. (Parts 1 and 2.) Carboniferous and New Red.

LONES (T. E.). Aristotle's Researches in Natural Science. London, 1912. 8vo. Cloth. 6*s.*

*** "General Survey of the whole field of Aristotle's Science, Geology, Physics, Biology, and the rest."

LUKIS (W. C.). The Prehistoric Stone Monuments of the British Isles: Cornwall. London (Soc. of Ant.), 1885. 4to. pp. 31. With 40 plates. Cloth. 9*s.*

MANSFIELD (G. R.). The Origin and Structure of the Roxbury Conglomerate. Cambridge (Mus. Comp. Zool.), 1906. 8vo. pp. 180. With 7 plates. 4*s.*

MANSON (M.). Geological and Solar Climates; their causes and variations. London, 1893. 8vo. Cloth. 2*s.*

MEUNIER (S.). Géologie des environs de Paris. Nouv. éd. Paris. 8vo. pp. 600, illustrated with 25 plates and coloured map. 11*s.* 6*d.*

NORDENSKJÖLD (O.). Die schwedische Südpolar-Expedition und ihre geographische Tätigkeit. Stockholm, 1911. 4to. pp. 222. With 3 maps and 16 plates. £1 4*s.*

PHILLIPS (J.). The Rivers, Mountains, and Sea-coast of Yorkshire. With essays on the climate, scenery, and ancient inhabitants of the county. London, 1853. 8vo. pp. 302. With 36 plates. Cloth. 4*s.* 6*d.*

PUMPELLY (R.). Geological Researches in China, Mangolia, and Japan, during the years 1862–5. Washington (Smith's), 1867. 4to. pp. 143. With 9 plates. 4*s.*

SHEPPARD (T.). The Lost Towns of the Yorkshire Coast. Hull, 1912. 8vo. With 150 illustrations. Cloth. 7*s.* 6*d.*

ZEILLER (R.). Végétaux fossiles du terrain houiller (en France). Paris, 1878–9. 1 vol. (text) 4to, and 1 vol. (atlas) folio, containing 18 plates. 15*s.*

*** Explic. de la carte géol. de la France, iv, 2.

BRITISH PETROGRAPHY.

With Special Reference to the Igneous Rocks.

By J. J. Harris Teall.

1888. Roy. 8vo. 458 pp. of text, with 47 plates, some coloured, bound in cloth extra, gilt top. £3 3s. net.

CLIMATIC CHANGES SINCE THE LAST ICE AGE.

A Collection of Papers read before the Committee of the Eleventh International Geological Congress at Stockholm, 1910.

4to. Sewed. £1 net.

THE

IRON ORE RESOURCES OF THE WORLD.

A Summary compiled upon the initiative of the Executive Committee of the Eleventh International Geological Congress, Stockholm, 1910, with the assistance of Geological Surveys and Mining Geologists of different Countries.

EDITED BY THE GENERAL SECRETARY OF THE CONGRESS.

2 vols. 4to. With 28 plates and 137 illustrations in the text, and accompanied by a folio Atlas of 42 maps. Price £3 net.

DULAU & CO., LTD., 37 SOHO SQUARE, LONDON, W.

THE SUBANTARCTIC ISLANDS OF NEW ZEALAND. Reports on the Geophysics, Geology, Zoology, and Botany of the Islands lying to the South of New Zealand. Based mainly on observations and collections made during an expedition in the Government steamer *Hinemoa* (Captain J. Bollons) in November, 1907. Edited by CHAS. CHILTON, M.A., D.Sc., F.L.S., Professor of Biology, Canterbury College, University of New Zealand. Profusely illustrated with full-page plates, photographs, and text-figures, and a large map of the Antarctic and Subantarctic Regions specially compiled and based on the most recent surveys. In two volumes, demy 4to, of about 400 pages each, 42*s.* net.

JUST PUBLISHED.

CATALOGUE OF GEOLOGICAL WORKS: No. 14, GENERAL GEOLOGY.
Post free on application.

All Communications for this Magazine should be addressed—

TO THE EDITOR,

13 Arundel Gardens, Notting Hill, London, W.

Books and Specimens to be addressed to the Editor as usual, care of

MESSRS. DULAU & CO., LTD., 37 SOHO SQUARE, W.

STEPHEN AUSTIN AND SONS, LTD., PRINTERS, HERTFORD.